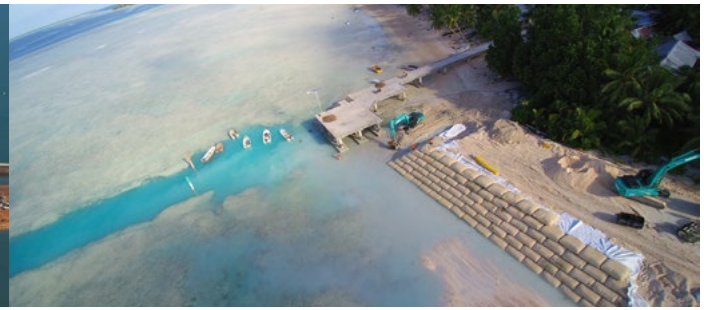
HALL

Pacific Islands

Your Asia Pacific specialists for dredging and climate change adaptation services

Hall Pacific is a privately-owned, Australian dredging, civil and marine construction company with offices in the Pacific Islands, South East Asia and Australia.

With more than 70 years of experience and a knowledgeable senior management team leading the way, we have the systems and procedures in place to successfully carry out a diverse range of projects. We are driven by a commitment to provide every client with a first-rate experience and have a strong track record in achieving outstanding results and delivering complex projects in remote locations.



OUR EXPERTISE

Whether it's building a new seawall and conducting land reclamation and coastal protection works in remote islands such as Tuvalu, undertaking flood mitigation dredging on a Fijian river, or dredging hard clay for a new port facility in Papua New Guinea, Hall Pacific is experienced in delivering dredging and climate change adaptation solutions in the Pacific Islands. Our comprehensive understanding of dredging and marine civil works and our fleet of first-rate equipment ensures we are well-equipped to perform in a variety of difficult environments.

At present, we have a range of dredges and ancillary equipment based in the Pacific Islands, including cutter suction dredges, work boats, a tug boat, accommodation barge and support equipment including excavators, dozers and trucks.

OUR CAPABILITIES

With global warming forecasted to impact significantly on sea levels and the severity of weather events, Pacific Island nations are facing the serious threat of coastal erosion, flooding and ecosystem imbalances. To mitigate the impact of climate change, Hall Pacific is able to design and implement adaptation strategies that improve coastal resilience and reduce vulnerability amongst our Pacific Island neighbours. Our capabilities include:

COASTAL PROTECTION

We bolster coastal defences through beach replenishment and marine structures such as groynes, seawalls and breakwaters. Our team can create customised solutions for a wide variety of beach erosion issues.

LAND RECLAMATION

Our team has a successful track record in creating usable land from sand dredged from waterways, bays and coral atolls. These works enable the expansion of key coastal land areas, and allow low-lying nations threatened by rising sea levels to increase the height of their land areas.

INFRASTRUCTURE DELIVERY

Whether it's building or expanding a jetty, installing mooring dolphins to assist with mooring vessels, or repairing damaged roads and causeways, we possess the knowledge and capabilities to successfully deliver a broad range of civil and marine infrastructure.

FLOOD MITIGATION DREDGING

Our team is experienced in undertaking flood mitigation dredging in rivers and waterways to lessen the impact of flooding in severe weather events. These works decrease the cost of damage to infrastructure and also minimise the threat of tropical waterborne diseases.

Case study: Tokelau

The Government of Tokelau and New Zealand Ministry of Foreign Affairs and Trade commissioned the upgrade of reef passages and the construction of four new wharves on Atafu, Nukunonu and Fakaofo atolls. The works will take two years to complete.

For the 1499 residents of Atafu, Nukunonu and Fakaofo, the only form of transportation between the three atolls; and in and out of their country is via shipping. Tokelau is utterly reliant upon their wharves for the transportation of materials, foods and passengers, as there is no air access to any of the atolls. The existing channels and wharves afford little protection from swell and are incredibly exposed, so widening and depending the reef and installing wave attenuation devices passages will enable shop-to-shore vessel operations, smaller fishing boats and inter-island vessels to navigate the area more easily and safely.

The works provide increased shelter from wave action and have been designed to minimise the need for regular maintenance.

THE CHALLENGE

There are no harbour or port facilities, and no large vessel access to any of the atoll lagoons.

There is a steep drop off to very deep water at the edge of the fringing reef. Vessels sit in deep water, typically 300 to 400m offshore, with cargo and passengers being transferred to and from shore using small boats. This results in considerable weather and tide related dependency, as well as significant risk in the transfer of both passengers and cargo. Experiences were also logged that even under calm conditions, ship-to-shore operations were cancelled or postponed due to wave conditions in the channels generated from tidal currents. Some of those delays resulted in serious consequences for some passengers, including those needing urgent medical assistance.

Each atoll has a concrete wharf at the landward edge of the reef channel, which were constructed the same time as the reef channels. Wharf facilities, generally, are in a poor state, and with the wharf areas relatively small, were not constructed to facilitate mechanical offloading of cargo from the barges. Offloading cargo by hand is labour-intensive, time-consuming and increases the risk of accidents.

The lack of landing facilities also makes the unloading of fuel and chemical drums both hazardous and dangerous.

In order to undertake any works in this remote location, operations must ensure complete self-sufficiency in terms of materials supply and equipment. Each atoll is extremely limited in land area - between 3.5 - 4.7km^2. This necessitates a continual supply of project materials by sea as storage and hard stand areas are minimal. In addition to materials, housing a workforce on each atoll for a period of months puts significant pressure on the local infrastructure and population resources.

Without air transportation, it is necessary to supply the project by sea. The staging for marine transport is out of Apia in Samoa.

THE SOLUTION

Hall's winning design proposed that pre-cast concrete panels be manufactured off-shore, and transported to the atolls with all the necessary equipment for their installation.

Doing it this way would achieve high-quality and durable concrete finishes that in the end would:

- reduce safety risks
- increase the number and range of passengers travelling to and from Tokelau, and between the atolls
- enhance the resilience and development of Tokelau's communities
- be disaster and climate change resilient
- improve the quality of life of all of Tokelau's people.

Key to our ability to undertake this project is the utilisation of our marine fleet. Most notably our barge, Orion and tug M.V. Katea. This enables us to control the supply lines for all materials, equipment and consumables. Supply of the atolls is a continual process, which each round trip taking between two to four weeks to complete. Marine supply operations run continually throughout project delivery.

Our team is comprised of 913 expatriate workers, 5 Tokelauans and 18 Samoan workers. Local Tokelauan workers are trained in the use of small tools, concreting and general labouring duties.

NZ **$19** Million Contract

24 Month Project

Workforce
5 Tokelauans
18 Samoans
9 Australians

Case study: Tuvalu

As the world's fourth-smallest country and standing at less than 4.5 metres above sea level, Tuvalu is one of the many Pacific Island nations being negatively impacted by the effects of climate change. Changes in tidal movements and weather conditions currently pose concerns regarding flooding and erosion, and rising sea levels threaten to engulf Tuvalu's islands and atolls in the future.

In past years, Tuvalu has also battled with sanitation and environmental issues caused by man-made trenches spread across the Funafuti atoll.

Hall Pacific was contracted by entities including the Government of Tuvalu and the New Zealand Ministry of Foreign Affairs and Trade to address these concerns through the delivery of a range of land reclamation and coastal protection works.

FUNAFUTI BORROW PIT REMEDIATION WORKS

THE CHALLENGE

During World War II, the United States Marine Corps dug up areas of the Funafuti atoll for use in building an airstrip. The resulting excavations – known as borrow pits – were uninhabitable, collecting rubbish as well as human and pig waste that seeped through the porous coral floor and into the surrounding lagoon.

This was not only unsanitary, but also increased the amount of nutrients and heavy metals entering the lagoon, causing significant damage to coral communities and ecosystem function. The pits also reduced Tuvalu's useable land space.

THE SOLUTION

Our team dredged 350,000m^3 of sand from the lagoon and used this to fill the borrow pits. In doing so, we increased the useable land space in the area by six per cent, creating more open space to be used by the community.

The works also minimised pollution and improved hygiene levels on the atoll.

FUNAFUTI COASTAL PROTECTION WORKS

THE CHALLENGE

With the Funafuti atoll experiencing a breach and severe weather threatening to split the coral atoll in two, action needed to be taken to repair the damage.

THE SOLUTION

Hall Pacific constructed a sand container wall to protect against coastal erosion. This effectively repaired the coastal barrier stretching from the ocean to the lagoon and has removed the threat of the atoll splitting in two.

AU **$7** Million Contract

6 Month Project

Workforce
20 Tuvaluans
4 Fijians
6 Australians

Case study: Tuvalu

NUKUFETAU COASTAL PROTECTION WORKS

THE CHALLENGE

During 2015, Tropical Cyclone Pam battered a seawall off the Nukufetau atoll, causing the existing sa wall made from 90kg concrete blocks to dislodge and damage property and infrastructure within the community settlement. The cyclone highlighted the inadequacy of the existing seawall and indicated a robust barrier was required to protect the stretch of coastline from large waves.

THE SOLUTION

Hall Pacific was engaged by the United Nations Development Program and the Government of Tuvalu to design and construct a 500-metre-long replacement geobag seawall on the northwestern front as well as another two walls to the south-west and south-east totalling 950m in length. The three-metre-high structures included an additional seawall crest to improve resilience to overtopping, and will greatly reduce the impact of fierce wave action.

AU **$8** Million Contract | **5** Month Project | Workforce **20** Tuvaluans **2** Fijians **5** Australians

FUNAFUTI LAND RECLAMATION WORKS

THE CHALLENGE

A key area of foreshore on the Funafuti atoll was comprised of solidified calcium carbonate, which made the ground very firm and highly susceptible to erosion. This placed the foreshore area and community settlement at risk, particularly during severe weather events.

In addition, Funafuti's useable land space is limited, and with most foreshore areas quite rocky, the atoll offered very few open spaces where residents could participate in recreational activities.

THE SOLUTION

Hall Pacific dredged approximately 115,000m^3 of sand from the nearby lagoon and pumped this to two strategically placed groynes on the coastline. Beach nourishment works were also undertaken on a 55,000m^2 stretch of foreshore.

As part of the works, our team also created a 40,000m^2 waterfront recreation area — now called Queen Elizabeth II Park — which significantly increased Funafuti's useable land space and enables the atoll's 4,000-plus residents to enjoy a range of leisure activities and beach sports.

AU **$3** Million Contract | **4** Month Project | Workforce **15** Tuvaluans **2** Fijians **5** Australians

Case study: Tuvalu

ENVIRONMENTAL CONSIDERATIONS

Hall Pacific is renowned for its environmentally conscious approach to projects, with our commitment to environmentally responsible contracting at the forefront of everything we do.

As part of the works carried out on Tuvalu, our team conducted environmental and social impact assessments to ensure any issues identified were managed effectively. A strong focus was placed on understanding the natural coastal process and working with the government and consultants to develop sustainable and effective solutions.

We are proud to have contributed positively to the natural surroundings, with projects such as the Funafuti borrow pit remediation works having greatly reduced pollution in Tuvalu. These works have also assisted in combating excessive algal growth in the nearby lagoon, benefiting the local ecosystem.

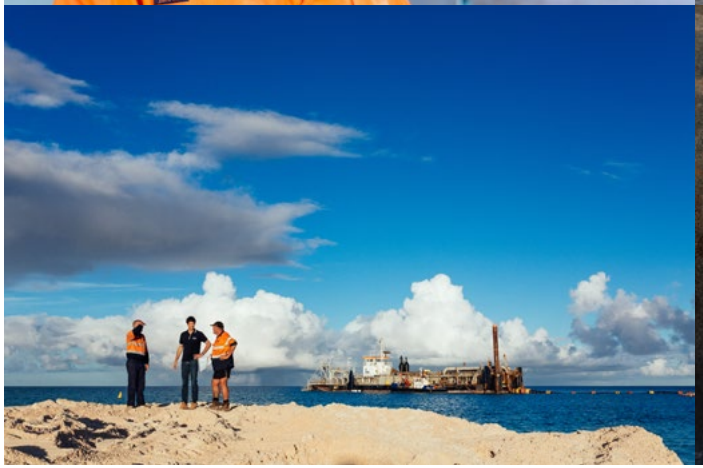
SUPPORTING THE LOCAL COMMUNITY

As part of the Tuvalu works, we equipped a number of local residents with new skills and employed them as marine engineers, machine operators and divers. Tuvaluan workers made up the majority of our workforce, with up to 20 locals employed at any given time. We also taught these workers to maintain the condition of the new sand container wall over the long term, ensuring the longevity of this important piece of infrastructure.









Project portifolio

NABOUWALU JETTY REPLACEMENT AND REPAIRS

Location	Bua, Vanua Levu, Fiji
Client	Fiji Roads Authority
Contract value	$4.2 million (FJD)
Timing	October-December 2015

The Nabouwalu Jetty provides a key transportation link between the Vanua Levu and Viti Levu islands in Fiji. Hall Pacific was contracted to undertake interim repairs to the jetty and causeway in 2015 including:

- isolating the existing jetty and jetty extension
- installing a steel deck over the existing ramp to prevent failure of the underlying concrete structure
- consulting with key stakeholders to achieve the best possible outcomes
- dredging the seabed to provide sufficient depth for shipping across a full tidal range
- installing mooring dolphins to assist with mooring of vessels
- conducting repairs to the existing causeway, including the road surface and rock armour.

The contract was carried out in stages to ensure the jetty remained operational during the construction period.

NADI RIVER FLOOD MITIGATION DREDGING

Location	Nadi, Viti Levu, Fiji
Client	Fiji Government
Contract value	$8 million (FJD)
Timing	2008-2010

With many of Fiji's coastal rivers suffering from serious sediment build-up as a result of soil erosion in the upper catchments, and tropical rains and cyclones posing significant flood threats to towns and villages in coastal deltas, Hall Pacific was engaged to remove excess sediment from the Nadi River in 2008.

Following the successful completion of this contract, our team has since been awarded a further three contracts on-site, dredging a total of 1.6 million m^3 of sediment and significantly reducing the impacts of flooding in the area.

Local Fijian operators and crew formed an integral part of the project, with government surveyors also trained in hydrographic survey techniques.

BA RIVER FLOOD MITIGATION DREDGING

Location	Ba, Viti Levu, Fiji
Client	Fiji Government
Contract value	$4 million (FJD)
Timing	May-November 2015

A major river in Fiji, the Ba River flows through the town of Ba, a significant agriculture and industrial city on the island of Viti Levu.

During the wet season, severe flooding regularly causes damage to local infrastructure and the lives of people in the area.

Hall Pacific was engaged in 2015 to assist in managing this issue. Our team dredged 450,000m^3 of sediment from the river to reduce the effects of flooding.

SOUTH PARAY CHANNEL DREDGING

Location	Port Vila, Efate, Vanuatu
Client	Government of Vanuatu
Contract value	$2 million (AUD)
Timing	November 2016-January 2017

To improve navigational accessibility from the South Paray Wharf to Iririki Island, Hall Pacific dredged a channel 50m wide, 200m long and 5.5m deep (approximately 46,000m^3).

Coral limestone material was used to reclaim part of the port for container space. This will allow 60-metre-long cargo ships to use the channel, cutting significant time off their voyage.

OUR TRACK RECORD

Throughout our 70-plus years of operation, Hall Pacific has successfully worked with a range of national governments, high profile companies and not-for-profit organisations. These include (but are not limited to):

- Fiji Government
- Government of Tuvalu
- Fiji Roads Authority
- PNG Ports Corporation Ltd
- New Zealand Ministry of Foreign Affairs and Trade
- United Nations Development Program
- Gazelle Restoration Authority
- The World Bank
- Government of Vanuatu
- Asian Development Bank.

OUR MANAGEMENT SYSTEMS

At Hall Pacific, we are firm believers that our safety and environment systems, as well as our quality and risk management systems are essential to our success. We are proud to carry the following internationally recognised certifications for our management systems:

bsi. AS/NZS 4801:2001 Occupational Health and Safety Management

bsi. ISO 14001 Environmental Management

bsi. ISO 9001 Quality Management

SUPPORTING PACIFIC ISLAND COMMUNITIES

At Hall Pacific, we recognise that self-sufficiency is important to Pacific Island communities. Our team members work hard to improve the quality of life of locals through climate change adaptation and employment opportunities, and are committed to caring for the environment.

We are proud to:

IMPROVE THE LIVING STANDARDS OF LOCAL COMMUNITIES

Whether it's reducing flooding and pollution, creating more useable land space or constructing marine or land transport infrastructure, we contribute positively to the living conditions within Pacific Island communities, ultimately benefiting those that live and work in these areas.

PROTECT PACIFIC ISLAND COMMUNITIES FROM CLIMATE CHANGE

Our team successfully protects against severe weather events, designing and building seawalls that increase resistance against large waves and storm systems. Our land reclamation capabilities also enable us to safeguard Pacific Island communities against rising sea levels.

SUPPORT LOCAL ECONOMIES

In addition to the highly experienced team of Australian expatriates that deliver our projects in the Pacific Islands, we source a high percentage of workers locally. We pride ourselves on equipping local residents with new skills and creating employment opportunities.

CARE FOR THE ENVIRONMENT

With many Pacific Islanders relying on agricultural practices for their food supply and livelihood, we understand the importance of looking after the ecosystems we work in. Our team is experienced in carrying out environmental impact assessments, and our dredging and civil construction solutions always take into account the health and prosperity of the surrounding natural environment.

Our belief statement

Hall Pacific believes that developing countries should have the ability to protect themselves from the impacts of climate change. This is critical to the global community as it ensures cultural values that have spanned centuries are passed down to future generations.

Hall Pacific has worked with its Pacific Islander neighbours for many decades to solve these problems and will continue to do so for years to come.

HALL

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